

HF RIGHT-ANGLE CONNECTOR

9 FIELD OF THE INVENTION

The invention relates to an HF right-angle connector comprising a keyed plug
5 receiver, on which a plug and comprising a socket housing, which is provided with
connecting means for a coaxial cable.

4 BACKGROUND OF THE INVENTION

HF right-angle connectors, generally used in motor vehicles, comprises a plug
having a complimentary counterpart key fixed in an angular position. Depending on the
10 direction in which the coaxial cable has to be led off by means of the right-angle
connector, a different right-angle connector part is needed because the angular position of
the keying in the plug receiver of the right-angle connector part is fixed. In these
connector arrangements, three different right-angle connector parts are needed for a cable
lead-off to the left, to the right and a central cable lead-off.

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An object of the invention is therefore to provide a right-angle connector part,
with which a cable lead-off in different directions is possible.

6 SUMMARY OF THE INVENTION

This and other objects are achieved according to the invention by an HF right-
20 angle connector having a plug receiver constructed separately from the socket housing
and being mountable in various positions onto the socket housing to make it possible for
the cable lead-off to be positioned in the desired direction.

In the case of the right-angle connector parts according to prior art three tools are
25 needed to produce the three different cable lead-offs generally required, whereas in the
case of the right-angle connector part according to the invention only two tools are
needed to produce the plug receiver and the socket housing. The right-angle connector
according to the invention is however not restricted merely to the three cable lead-offs
generally required but also enables cable lead-offs in other desired angular positions.

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According to a preferred embodiment, a latching device for securing the plug to be received is disposed on the plug receiver. The latching device may constitute the keying for the plug to be received, although it is also possible for additional keying ribs and/or grooves to be provided in the plug receiver for the plug to be received.

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There now follows a detailed description of an embodiment of the invention, which is illustrated in the drawings in which:

10 Figure 1 is an exploded view of the right-angle connector,

Figure 2 is an oblique view of the plug receiver and the socket housing in the separated state,

15 Figures 3 to 5 are oblique views of the right-angle connector having different angularly mounted plug receiver.

4 **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 shows an exploded view of the right-angle connector according to the invention. It comprises a socket housing divided into two parts, namely a socket housing upper part 1 and a socket housing lower part 2. An insulation displacement apparatus upper part 3 and an insulation displacement apparatus lower part 4 are respectively inserted into the socket housing upper part 1 and the socket housing lower part 2 for contacting the external conductor of an HF coaxial cable 5. A crimp connection 7 is provided with an L-shaped internal conductor receptacle contact 6 for contacting the internal conductor of the coaxial cable 5. A plug receiver 8 is mountable on the socket housing upper part 1 for receiving an HF plug. A key for the plug to be received is formed on the plug receiver 8 and, depending on whether the coaxial cable 5 is to be led off to the left, to the right or centrally, the plug receiver 8 may be mounted in the corresponding desired position onto the socket housing upper part 1.

4 30 **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Disposed at the top of the plug receiver 8 in the position shown is Figure 1 is a latching device 9 for securing the plug to be received. The latching device 9 as well as additional keying grooves 10, as shown in Figures 3 to 5, together represent the key, by which the position of the plug receiver 8 is fixed. When assembled, the socket housing 1, 2 with received insulation displacement apparatus 3, 4 and coaxial cable 5 is shielded by a clip-on cap 11.

Figure 2 shows the plug receiver 8 and the socket housing upper part 1 in an enlarged oblique view, wherein the plug receiver 8 and the socket housing are still separate. In order to be able to mount the plug receiver 8 onto the socket housing upper part 1, a substantially square middle part 12, which is set back in an inward direction relative to the outer periphery of the plug receiver 8, is provided on the side of the plug receiver 8 directed towards the socket housing upper part 1 a. Disposed on the middle part 12 is a likewise substantially square plate 13, which projects on all sides beyond the middle part 12. Both the middle part 12 and the square plate 13 have in the center a circular through-opening 14, through which the outer conductor of the upper part of the insulation displacement apparatus 3 passes and the internal conductor receptacle contact 6 extends.

Recesses 15 are formed along centerlines of the plate 13 opposite the latching device 9. The recesses 15 extend from the through-opening 14 outward through the plate 13 and are used to receive the upper part 3 of the insulation displacement apparatus. As shown in Figure 1, on the upper part 3 of the insulation displacement apparatus, a web 16 is disposed, which merges into an external conductor socket 17. When mounted, the external conductor socket 17 is inserted through the through-opening 14 and the web 16 is received in the recess 15 of the plate 13.

Figures 3 to 5 show oblique views of the fully assembled right-angle connector, wherein the plug receiver 8 is mounted in different angular orientations onto the socket housing upper part 1. The lead-off of the coaxial cable 5 extends in Figure 3 opposite the

latching device 9 or the keying grooves 10, whereas in Figure 4 it extends to the right and in Figure 5 to the left.

U-shaped receivers 18 are formed on both sides of the socket housing upper part 1 and are open towards the end face of the socket housing upper part 1. The plate 13 of the plug receiver 8 is inserted into these U-shaped receivers 18 to embrace the plate 13 on both sides, so that the plug receiver 8 is firmly connected to the socket housing upper part 1. Latching means are formed on the plug receiver 8 for latching the plug receiver 8 to the socket housing upper part 1, complimentary latching means are also formed on the socket housing upper part 1. According to the illustrated embodiment, the latching means of the plug receiver 8 take the form of projections 19 on the middle part 12, and the complimentary latching means take the form of recesses 20 in the upper limb 21 of the U-shaped receivers 18. The projections 19 are provided in each case along symmetrical lines of the middle part 12 and at the three locations of the recesses 15.

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Two of the recesses 20 in the U-shaped receivers 18 are provided on opposite sides of an upper limb 21 of the U-shaped receivers 18 so that, when the plug receiver 8 is inserted into the socket housing upper part 1, regardless of its angular position, two projections 19 latch into the recesses 20.

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The latching device 9 on the plug receiver 8 also has a pivotally supported latching hook 22, which may be moved out of its latched-in position by a manually operable button 23 in order to remove the plug from the plug receiver 8.

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The invention is not restricted to the illustrated embodiment, for example it is also possible for the button 23 not to project beyond the connecting face of the plug receiver 8 to the socket housing upper part 1 and for the middle part 12 and the plate 13 to be designed in such a way that a lead-off of the coaxial cable 5 in the direction of the latching device 9 may be effected.

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In a further, non-illustrated embodiment, the plate 13 is designed not as a square but as a hexagon or octagon, thereby enabling a lead-off of the coaxial cable 5, in the case of a hexagon, in all angular positions offset by 60° and, in the case of an octagon, in all angular positions offset by 45° .